ED_014244_00000747-00001

Ohio Environmental Protection Agency
Division of Surface Water

Beneficial Use Site Information

Ohio EPA Site I.D. (Ohio EPA Use Only)

Field site I.D.: MOQ-05-10

Beneficial use site location: 0.3 miles W of Kratt Rd., on S side of Waldo-Fulton Chesterville Rd.

County: Morrow

Township: Westfield

Latitude: 40°27'51.29"N

Longitude: 82°56'17.39"W

Total acreage proposed for beneficial use: 84.5

Type of beneficial use to be performed:

Surface application ☐
Injection or immediate incorporation ■

Ground slope percent:

Less than 15%	■	15% to 19.9%	☐
Greater than 20%	☐		

Soil pH (s.u): 4.9

Soil phosphorus (mg/kg): 36

Bray Kurtz P1 ☐
Mehlich 3 ■

Bedrock depth (feet): >3ft

Type of crops to be grown:

Crop Type	Expected Yield
Corn	180 bu
Soybeans	60 bu
Wheat	
Pasture	
Hay	
Other:	

Soil Types:

Soil Unit Symbol	Soil Unit Name	Hydrologic Soil Group	Flooding Frequency Class
Blg1A1	Blount silt loam, ground moraine, 0-2% slopes	D	None
Blg1B1	Blount silt loam, ground moraine, 2-4% slopes	D	None
Gwg1B1	Glynwood silt loam, ground moraine, 2-6% slopes	D	None
Pm	Pewamo silty clay loam, 0-1% slopes	C/D	None

Division of Surface Water
Application for Authorization: Class B Beneficial Use Sites

Applicable isolation distances:

Type of Isolation Distance			
Surface waters of the state	■	Sinkhole/UIC class V drainage	☐
Occupied building	■	Private potable water source	☐
Medical care facility	☐		

Are any endangered species or endangered species habitats located on the beneficial use site?

☐ Yes	■ No

If "Yes" is marked, list the types of endangered species or endangered species habitat:

Have biosolids been beneficially used on the site since July 20, 1993?

☐ Yes	■ No

If "Yes" is marked, list the biosolids generators and years beneficial use occurred:

Generator	NPDES permit No.	Year of Beneficial Use

The application must also include all of the following:

- ■ A soil map of the proposed beneficial use site.
- ■ A frequency flood class map of the proposed beneficial use site.
- ■ An aerial map of the proposed beneficial use site that clearly identifies the entrance of the beneficial use site from the nearest road and all applicable isolation distances as established in Chapter 3745-40 of the Ohio Administrative Code.
- ■ A vicinity road map at or near the township level that clearly identifies the proposed beneficial use site with all roads labeled.
- ■ A copy of the most recent soil test results identified in this form.

quasar energy group

MOQ-05-10
Total Acreage: 84.5 Acres

N

0 300 600 1,200 Feet

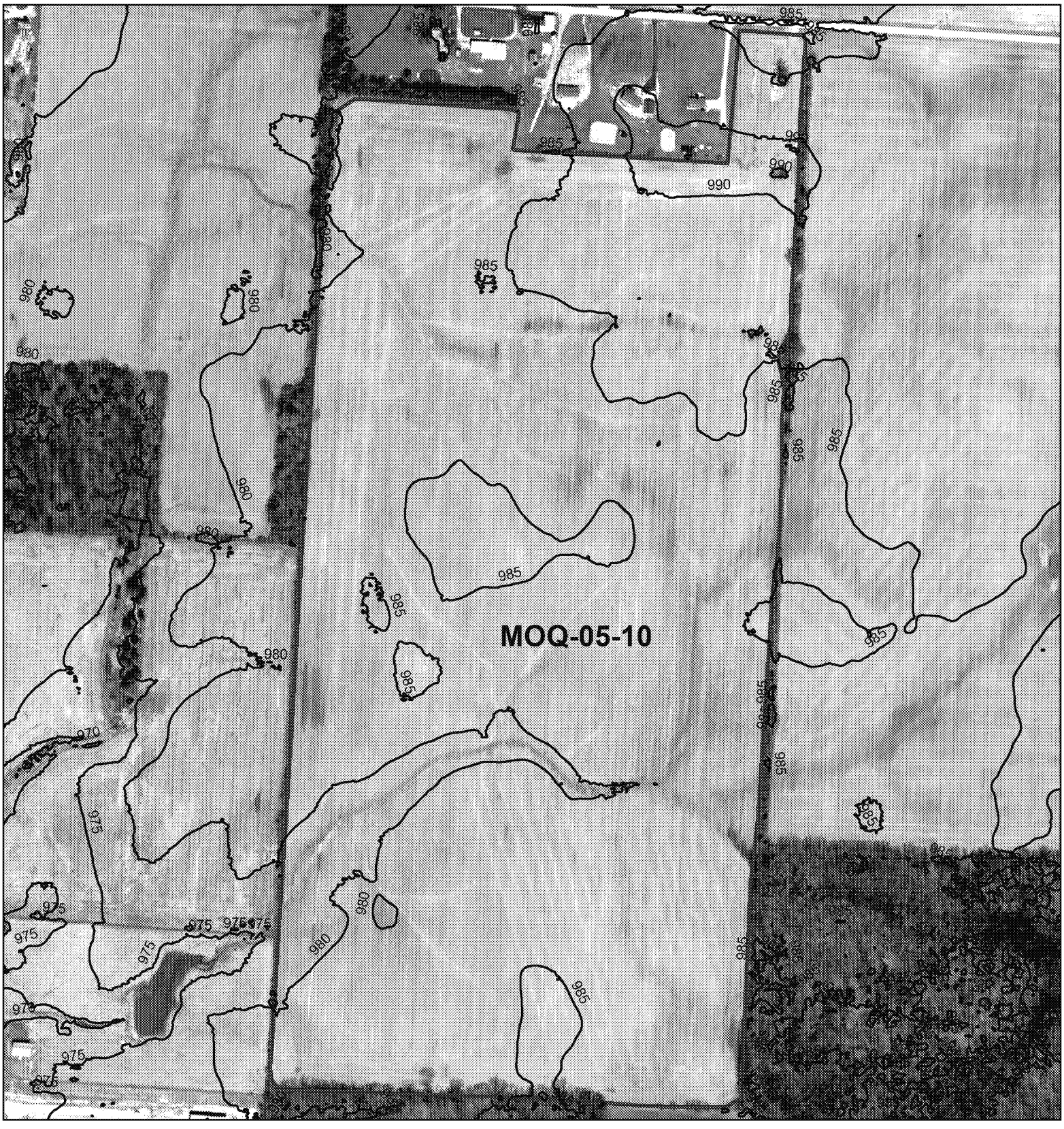
Residences
Waterways
33ft Water Buffer
100ft Res Buffer
300ft Res Buffer

ED_014244_00000747-00004

quasar energy group

MOQ-05-10
Total Acreage: 84.5 Acres

N



0 300 600 1,200 Feet

5ft Contours

ED_014244_00000747-00005

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Data: Version 14, Sep 29, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 5, 2011—Feb 3, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Morrow County, Ohio (OH117)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	24.8	29.6%
Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	0.2	0.2%
Gwg1B1	Glynwood silt loam, ground moraine, 2 to 6 percent slopes	39.8	47.6%
Pm	Pewamo silty clay loam, 0 to 1 percent slopes	18.9	22.6%
Totals for Area of Interest		**83.6**	**100.0%**

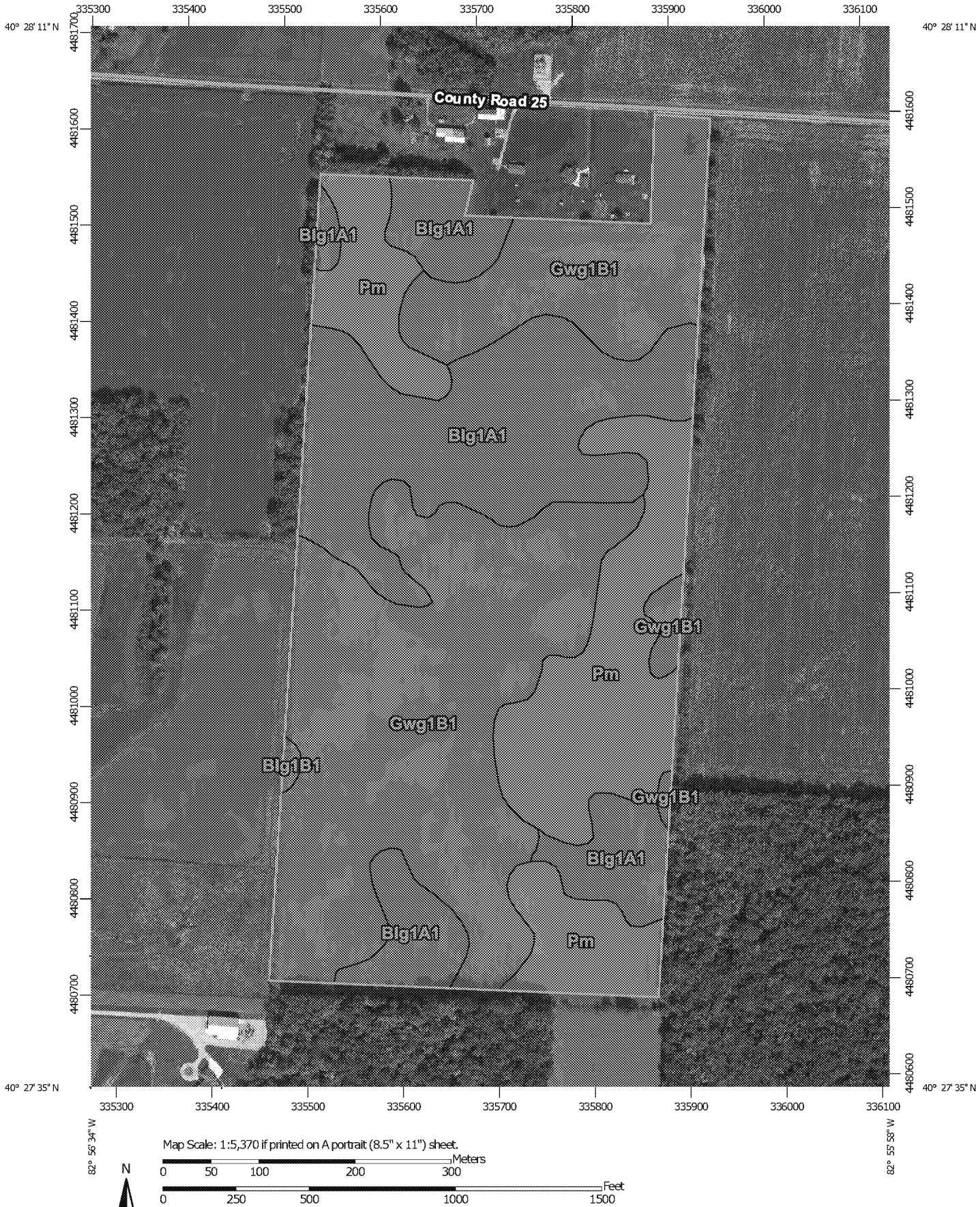
Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic


82° 56' 34" W
82° 55' 58" W
40° 28' 11" N
40° 27' 35" N
335300
335400
335500
335600
335700
335800
335900
336000
336100
4481700
4481600
4481500
4481400
4481300
4481200
4481100
4481000
4480900
4480800
4480700
4480600
County Road 25
Blg1A1
Gwg1B1
Pm
Blg1B1
Map Scale: 1:5,370 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0 50 100 200 300
Feet
0 250 500 1000 1500
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

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Table—Hydrologic Soil Group (MOQ-05-10)

Hydrologic Soil Group— Summary by Map Unit — Morrow County, Ohio (OH117)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	D	24.8	29.6%
Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	D	0.2	0.2%
Gwg1B1	Glynwood silt loam, ground moraine, 2 to 6 percent slopes	D	39.8	47.6%
Pm	Pewamo silty clay loam, 0 to 1 percent slopes	C/D	18.9	22.6%
Totals for Area of Interest			**83.6**	**100.0%**

Rating Options—Hydrologic Soil Group (MOQ-05-10)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

lb/A

BROOKSIDE LABORATORIES, INC.

58251-1

SOIL AUDIT AND INVENTORY REPORT

Name Ringler Energy City Cardington State OH

Independent Consultant Brookside Consultants of Ohio, Inc. Date 10/13/2015

№ 4073

Sample Location ETGEN/FOUST 85A		A				
Sample Identification		d 8 in				
Lab Number		1493-1				
Total Exchange Capacity (ME/100 g)		11.32				
pH (H_2O 1:1)		5.3				
Organic Matter (humus) %		2.50				
Estimated Nitrogen Release	lb/A	93				
ANIONS — SOLUBLE SULFUR*	ppm	11				
ANIONS — PHOSPHORUS — MEHLICH III	lb/A P as P_2O_5	159				
	ppm of P	26				
ANIONS — PHOSPHORUS — BRAY II	lb/A P as P_2O_5	110				
	ppm of P	18				
ANIONS — PHOSPHORUS — OLSEN	lb/A P as P_2O_5					
	ppm of P					
EXCHANGEABLE CATIONS — CALCIUM*	lb/A	2619				
	ppm	982				
EXCHANGEABLE CATIONS — MAGNESIUM*	lb/A	419				
	ppm	157				
EXCHANGEABLE CATIONS — POTASSIUM*	lb/A	184				
	ppm	69				
EXCHANGEABLE CATIONS — SODIUM*	lb/A	48				
	ppm	18				
BASE SATURATION PERCENT						
Calcium	%	43.37				
Magnesium	%	11.56				
Potassium	%	1.56				
Sodium	%	0.69				
Other Bases	%	6.80				
Hydrogen	%	36.00				
EXTRACTABLE MINORS						
Boron* (ppm)		0.33				
Iron* (ppm)		188				
Manganese* (ppm)		87				
Copper* (ppm)		1.88				
Zinc* (ppm)		1.64				
Aluminum* (ppm)		792				
OTHER TESTS — Soluble Salts (mmhos/cm)						
OTHER TESTS — Chlorides (ppm)						

d - specific depth

* Mehlich III Extractable

lb/A

BROOKSIDE LABORATORIES, INC.

58251-1

SOIL AUDIT AND INVENTORY REPORT

Name Ringler Energy City Cardington State OH

Independent Consultant Brookside Consultants of Ohio, Inc. Date 10/13/2015

Sample Location		ETGEN/FOUST	B				
Sample Identification			d 8 in				
Lab Number			1494-1				
Total Exchange Capacity (ME/100 g)			7.56				
pH (H_2O 1:1)			4.5				
Organic Matter (humus) %			2.35				
Estimated Nitrogen Release		lb/A	89				
ANIONS	SOLUBLE SULFUR*	ppm	15				
ANIONS / PHOSPHORUS	MEHLICH III	lb/A P as P_2O_5	232				
		ppm of P	38				
	BRAY II	lb/A P as P_2O_5	165				
		ppm of P	27				
	OLSEN	lb/A P as P_2O_5					
		ppm of P					
EXCHANGEABLE CATIONS	CALCIUM*	lb/A	1053				
		ppm	395				
	MAGNESIUM*	lb/A	165				
		ppm	62				
	POTASSIUM*	lb/A	192				
		ppm	72				
	SODIUM*	lb/A	53				
		ppm	20				
BASE SATURATION PERCENT							
	Calcium	%	26.16				
	Magnesium	%	6.84				
	Potassium	%	2.45				
	Sodium	%	1.15				
	Other Bases	%	8.40				
	Hydrogen	%	55.00				
EXTRACTABLE MINORS							
	Boron* (ppm)		< 0.20				
	Iron* (ppm)		185				
	Manganese* (ppm)		56				
	Copper* (ppm)		1.65				
	Zinc* (ppm)		1.71				
	Aluminum* (ppm)		1007				
OTHER TESTS	Soluble Salts (mmhos/cm)						
	Chlorides (ppm)						

d - specific depth

* Mehlich III Extractable

lb/A

BROOKSIDE LABORATORIES, INC.

58251-1

SOIL AUDIT AND INVENTORY REPORT

Name Ringler Energy City Cardington State OH

Independent Consultant Brookside Consultants of Ohio, Inc. Date 10/13/2015

Sample Location	ETGEN/FOUST		C				
Sample Identification			d 8 in				
Lab Number			1495-1				
Total Exchange Capacity (ME/100 g)			10.24				
pH (H_2O 1:1)			4.6				
Organic Matter (humus) %			2.43				
Estimated Nitrogen Release		lb/A	92				
ANIONS	SOLUBLE SULFUR*	ppm	14				
ANIONS / PHOSPHORUS	MEHLICH III	lb/A P as P_2O_5	250				
		ppm of P	41				
	BRAY II	lb/A P as P_2O_5	195				
		ppm of P	32				
	OLSEN	lb/A P as P_2O_5					
		ppm of P					
EXCHANGEABLE CATIONS	CALCIUM*	lb/A	1525				
		ppm	572				
	MAGNESIUM*	lb/A	256				
		ppm	96				
	POTASSIUM*	lb/A	240				
		ppm	90				
	SODIUM*	lb/A	51				
		ppm	19				
BASE SATURATION PERCENT							
Calcium		%	27.93				
Magnesium		%	7.81				
Potassium		%	2.25				
Sodium		%	0.81				
Other Bases		%	8.20				
Hydrogen		%	53.00				
EXTRACTABLE MINORS							
Boron* (ppm)			< 0.20				
Iron* (ppm)			167				
Manganese* (ppm)			53				
Copper* (ppm)			1.42				
Zinc* (ppm)			1.42				
Aluminum* (ppm)			936				
OTHER TESTS	Soluble Salts (mmhos/cm)						
	Chlorides (ppm)						

d - specific depth

* Mehlich III Extractable

lb/A

BROOKSIDE LABORATORIES, INC.

58251-1

SOIL AUDIT AND INVENTORY REPORT

Name Ringler Energy City Cardington State OH

Independent Consultant Brookside Consultants of Ohio, Inc. Date 10/13/2015

Sample Location ETGEN/FOUST		D				
Sample Identification		d 8 in				
Lab Number		1496-1				
Total Exchange Capacity (ME/100 g)		15.31				
pH (H_2O 1:1)		5.1				
Organic Matter (humus) %		3.03				
Estimated Nitrogen Release	lb/A	107				
ANIONS — SOLUBLE SULFUR*	ppm	12				
ANIONS — PHOSPHORUS — MEHLICH III	lb/A P as P_2O_5	232				
	ppm of P	38				
ANIONS — PHOSPHORUS — BRAY II	lb/A P as P_2O_5	153				
	ppm of P	25				
ANIONS — PHOSPHORUS — OLSEN	lb/A P as P_2O_5					
	ppm of P					
EXCHANGEABLE CATIONS — CALCIUM*	lb/A	3035				
	ppm	1138				
EXCHANGEABLE CATIONS — MAGNESIUM*	lb/A	544				
	ppm	204				
EXCHANGEABLE CATIONS — POTASSIUM*	lb/A	304				
	ppm	114				
EXCHANGEABLE CATIONS — SODIUM*	lb/A	59				
	ppm	22				
BASE SATURATION PERCENT						
Calcium	%	37.17				
Magnesium	%	11.10				
Potassium	%	1.91				
Sodium	%	0.62				
Other Bases	%	7.20				
Hydrogen	%	42.00				
EXTRACTABLE MINORS						
Boron* (ppm)		0.37				
Iron* (ppm)		261				
Manganese* (ppm)		49				
Copper* (ppm)		2.51				
Zinc* (ppm)		2.01				
Aluminum* (ppm)		923				
OTHER TESTS — Soluble Salts (mmhos/cm)						
OTHER TESTS — Chlorides (ppm)						

d - specific depth

* Mehlich III Extractable